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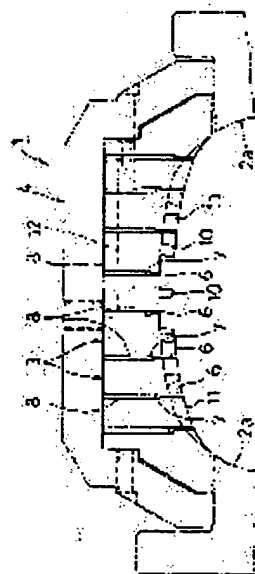
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(54) SECTIONAL TYPE TIRE MOLD AND PREPARATION THEREOF

(57)Abstract:

PURPOSE: To omit the trimming work of vent spew, to prevent the deterioration of tire appearance due to a trimming mark and to eliminate load noise by forming slits between mutual segments on the side of a tread molding surface and setting the width of each of the slits to a size permitting air to pass but unvulcanized rubber not to pass.

CONSTITUTION: A large number of segments 3 constituting a laminate are integrated using a taper pin 12 as a connection member in such a state that the divided surfaces of the segments in the peripheral direction are brought to a mutual contact state. Narrow slits 6 are formed between the segments 3 adjacent to each other on the side of the tread molding surface of the laminate and spaces 7 having a cross-sectional area larger than that of the slits are formed behind the slits. The width of each slit 6 is set to a narrow dimension permitting air to pass but unvulcanized rubber not to pass when a green tire is loaded with internal pressure to be pressed to a molding surface. This width providing air vent function to the slits 6 is pref. set so that the max. 0.05mm is a limit.

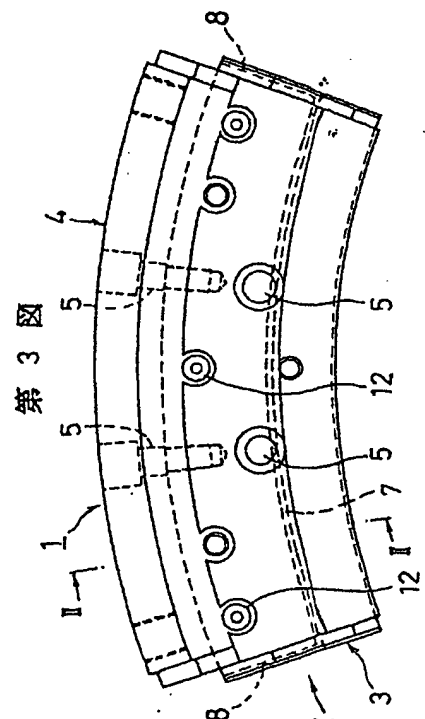
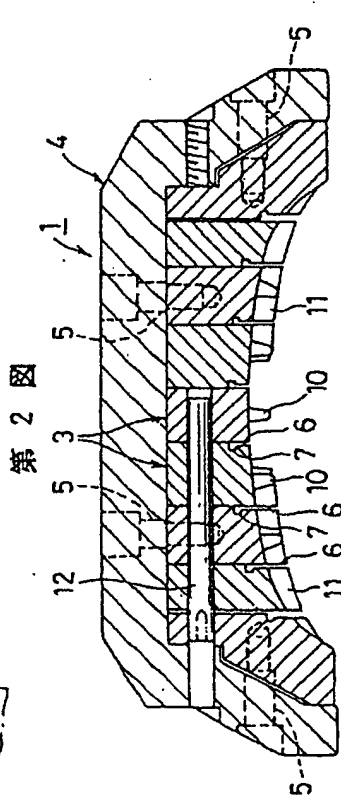
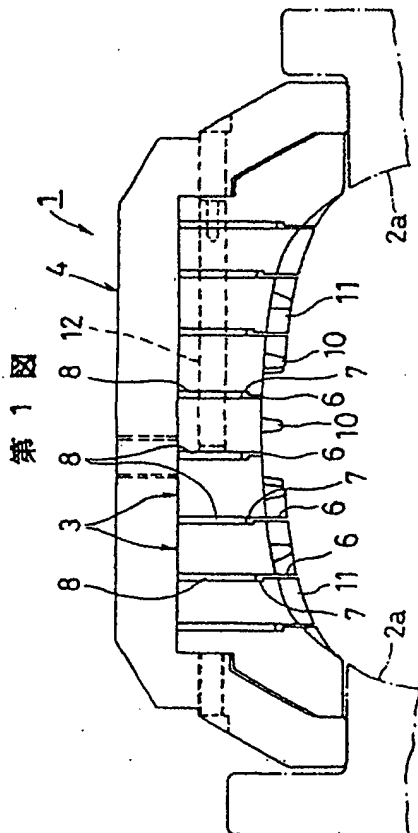
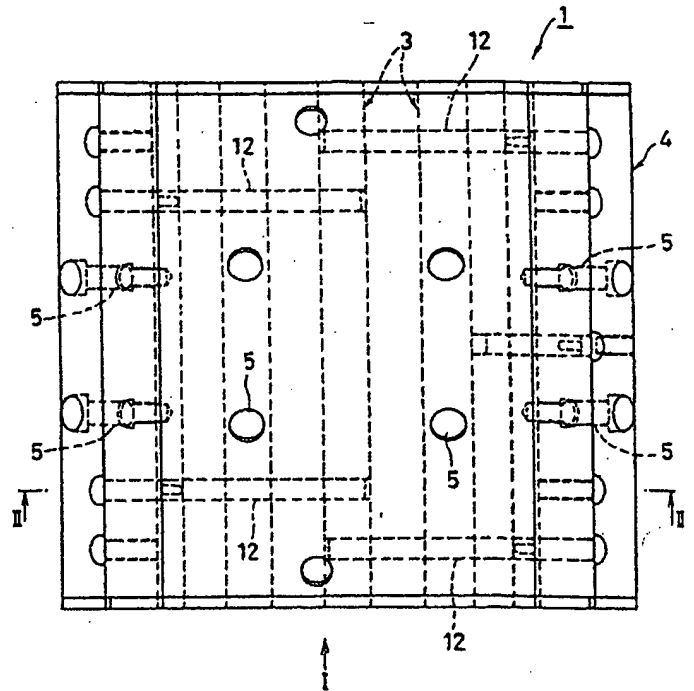


4. 図面の簡単な説明

第1～4図は本発明の実施例からなるセクショナル型タイヤ成形金型を示し、それぞれ第1図は第3図のⅠ矢視並びに同じく第4図のⅠ矢視で示す側面図、第2図は第3図のⅡ-Ⅱ矢視で示す断面図、第3図は正面図、第4図は平面図である。第5～8図は本発明の他の実施例からなるセクショナル型タイヤ成形金型を示し、それぞれ第5図は第7図のⅤ矢視並びに同じく第8図のⅤ矢視で示す図、第6図はテーパピンに対応する断面を示す断面図、第7図は正面図、第8図は平面図である。第9図A、B、Cはそれぞれ本発明の金型の製作方法を示す工程図、第10図A、B、Cはそれぞれ他の製作方法を示す工程図、第11図A、Bはそれぞれさらに他の製作方法を示す工程図である。

1…セクター、3…セグメント、6…スリット、7…（横断面積の大きな）空間、8…連通孔、12…テーパピン（連結部材）、13…ボルト（連結部材）。

第4図



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(Partial Translation)

FIGS 1 to 4 depict an example of a sectional type tire mold of the present invention.

Numeral 1 is a sector for molding a tread part of a tire. In the figures, only one sector is depicted, however, a tread mold part is configured by assembling a plurality of sectors 1 in a circular pattern circumferentially. As shown by imaginary line (dashed line) in FIG.1, side plates 2a and 2b for molding side walls of the tire are assembled on both side parts where the plurality of sectors are assembled circularly.

A main part of the sector 1 is comprised of a laminated body which is laminated with a plurality of segments 3 of aluminum alloy (the number of segments are nine in this example), and the laminated body is attached to a steel back mold 4. The plurality of segments 3 which configure the laminated body are integrated using a taper pin 12 as a connecting member with the parting surfaces thereof in a circumferential direction abutting to each other. The laminated body is attached further to the back mold 4 so as to be fixed integrally by a bolt 5.

On a tread mold side of the laminated body into which the plurality of segments 3 are integrated, a plurality of main groove mold bones 10 (the number of bones are five in this example) are formed circumferentially, and sub groove mold bones 11 extending in radial direction are also formed.

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In addition, on the tread mold side of the laminated body, a narrow slit 6 is formed between segments 3 and 3 which are contiguous to each other. On a back surface of the slit 6, space 7 is formed having a cross section area greater than that of this slit. The space 7 forms a groove contiguous in a whole circumferential direction of the segment 3, and is further connected to a linked groove 8 formed on both circumferential end faces of the segment 3. The linked groove 8 is extending upward on the circumferential end face of the sector 1 to outside of the mold.

Width t of the slit 6 is sized narrow such that only air can be passed through the slit 6 but unvulcanized rubber cannot be passed through it when a green tire is pressed against the mold face by loading inner pressure thereof. In order to make the slit 6 to have such an air vent function, the upper limit of the width t may be 0.05 mm although this depends on a viscosity of unvulcanized rubber as described above.

The slit 6 having such an air vent function may be formed along whole circumference of the sector 1, or alternatively, may be formed to be partially dispersed. In addition, it is preferred that at least one of the slits 6 having this air vent function is disposed between two main groove mold bones 10 and 10 which are contiguous to each other.

Since the slit 6 does not pass unvulcanized rubber as

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described above, the slit does not form a spew but small convex grooves (parallel grooves) on a tread face. Therefore, if the slit 6 is to be disposed in whole circumference, the slit can be utilized as a groove for molding a grid line pattern of the tread face. That is, in order to form a grid line pattern on the tread face, the slit 6 can be also used for a grid line mold groove fabricated on the mold face. For the grid line mold groove, since grooves dedicated to the grid line are disposed in a radial direction, if the these are configured to cross the slit 6, the air vent effect of the slit 6 can be more increased.

If the slit 6 is formed to be partially dispersed in the circumference direction, it may be disposed at the same place where a vent hole of a conventional mold is disposed. The slit 6 formed to be partially dispersed has only slight convex grooves (parallel grooves) appearing on the tread face compared with the case where the slit 6 is formed in whole circumference, therefore a nice appearance can be achieved.